**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 5: MPI**

**Lesson 9: Hello World**

**Exercise Instructions for Students**

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*Browse and search the full curriculum at*[*http://shodor.org/petascale/materials/semester-curriculum*](http://shodor.org/petascale/materials/semester-curriculum)

*We welcome your improvements! You can submit your proposed changes to this material and the rest of the curriculum in our GitHub repository at*[*https://github.com/shodor-education/petascale-semester-curriculum*](https://github.com/shodor-education/petascale-semester-curriculum)

*We want to hear from you! Please let us know your experiences using this material by sending email to* [*petascale@shodor.org*](mailto:petascale@shodor.org)

1. Change the example code so that only even numbered ranks say “Hello World”. Try to write this in a general way so that it scales automatically to suit an execution with an arbitrary number of processes.
2. What is the order the ranks print in? Does that order change each time the program is run?